

# 1:250,000-scale Digital Raster Graphics (WiDNR WTM83/91 Version)

Metadata also available as

## Metadata:

- [Identification Information](#)
  - [Data Quality Information](#)
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  - [Spatial Reference Information](#)
  - [Entity and Attribute Information](#)
  - [Distribution Information](#)
  - [Metadata Reference Information](#)
- 

### *Identification\_Information:*

#### *Citation:*

##### *Citation\_Information:*

*Originator:* US Geological Survey (USGS)

*Publication\_Date:* 19970116

##### *Title:*

1:250,000-scale Digital Raster Graphics (WiDNR WTM83/91 Version)

*Geospatial\_Data\_Presentation\_Form:* map

##### *Publication\_Information:*

*Publication\_Place:* Madison, WI

*Publisher:* Wisconsin Department of Natural Resources (WiDNR)

### *Description:*

#### *Abstract:*

The Digital Raster Graphic (DRG) is a raster image of a scanned USGS topographic map including the 'map collar' information. The DRGs accompanying this metadata have been enhanced by the Wisconsin Dept. of Natural Resources (WiDNR) and converted from the original UTM grid as provided by USGS, to the Wisconsin Transverse Mercator (WTM) coordinate system based on the 1991 adjustment to the North American Datum of 1983 (NAD83/91).

#### *Purpose:*

A DRG is useful as a source or background layer in a GIS, as a means to perform quality assurance on other digital products, and as a source for the collection and

revision of DLG data. DRGs can also be merged with other digital data, e.g. DEMs or DOQs, to produce a hybrid digital file.

*Supplemental\_Information:*

660162.474742, 4712156.188283 [The preceding is from the original USGS DRG metadata.]

*Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Single\_Date/Time:*

*Calendar\_Date:*

VARIES; refer to the original USGS DRG metadata or to the DRG 'map collars' for specific information.

*Currentness\_Reference:* ground condition

*Status:*

*Progress:* Complete

*Maintenance\_and\_Update\_Frequency:* Irregular

*Spatial\_Domain:*

*Bounding\_Coordinates:*

*West\_Bounding\_Coordinate:* -92.75

*East\_Bounding\_Coordinate:* -87.08

*North\_Bounding\_Coordinate:* 47.08

*South\_Bounding\_Coordinate:* 42.50

*Keywords:*

*Theme:*

*Theme\_Keyword\_Thesaurus:* none

*Theme\_Keyword:* digital raster graphic

*Theme\_Keyword:* DRG

*Theme\_Keyword:* topographic map

*Place:*

*Place\_Keyword\_Thesaurus:*

Department of Commerce, 1977, Countries, Dependencies, Areas of Special Sovereignty, and their Principal Administrative Divisions (Federal Information Processing Standard 10-3): Washington, Department of Commerce, National Institute of Standards and Technology.

*Place\_Keyword:* WI

*Access\_Constraints:* None

*Use\_Constraints:*

Acknowledgment of the USGS would be appreciated in products derived from these data.

*Point\_of\_Contact:*

*Contact\_Information:*

*Contact\_Organization\_Primary:*

*Contact\_Organization:* Wisconsin DNR, Bureau of Technology Services

*Contact\_Address:*

*Address\_Type:* mailing address

*Address:* P.O. Box 7921

*City:* Madison

*State\_or\_Province:* Wisconsin (WI)

*Postal\_Code:* 53707-7921

*Country:* USA

*Contact\_Electronic\_Mail\_Address:* geodata@dnr.state.wi.us

*Data\_Set\_Credit:*

This DRG was produced through an Innovative Partnership agreement between The Land Information Technology Company, Ltd., of Aurora, CO and the USGS.

*Native\_Data\_Set\_Environment:*

TIFF; Data Format Version Number - 6.0; Resident Computer Operating System - DEC (Digital Equipment Corporation) Alpha 2100 server running Pathworks and OSF version 4.0a (Digital Unix); Resident Size of Dataset - Approx. 12 - 35 MB per DRG

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*Data\_Quality\_Information:*

*Attribute\_Accuracy:*

*Attribute\_Accuracy\_Report:*

The DRG is an 8-bit color image that employs a color palette to ensure uniform colors throughout a particular DRG series. All DRGs within a series must have the same RGB value.

*Logical\_Consistency\_Report:* Not Applicable

*Completeness\_Report:*

The DRG is a faithfully reproduced digital image of the original source map. Some differences may be detected between the source graphic used and the DRG due to the RGB values assigned that particular color. The intent is to recreate those colors as near as possible. Data completeness for DRG files reflect content of the source graphic. Features may have been eliminated or generalized on the source graphic due to scale and legibility constraints. For information on collection and inclusion criteria, see U.S. Geological Survey, 1994, Standards for 1:250,000-Scale Digital Line Graphs and Quadrangle Maps: National Mapping Program Technical Instructions and U.S. Geological Survey, 1994, Standards for Digital Line Graphs: National Mapping Program Technical Instructions.

*Positional\_Accuracy:*

*Horizontal\_Positional\_Accuracy:*

*Horizontal\_Positional\_Accuracy\_Report:*

While the datum of the published map is retained to be consistent with other USGS digital data, this image is cast on the UTM and may be INCONSISTENT with the credit note on the image collar. [NOTE: The preceding is from the original USGS DRG metadata. Refer to the Lineage section of this metadata report for information about subsequent DRG processing by WiDNR.]

*Vertical\_Positional\_Accuracy:*

*Vertical\_Positional\_Accuracy\_Report:*

Refer to the DRG collar for information about vertical positional accuracy.

*Lineage:*

*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* USGS

*Publication\_Date:* Varies

*Title:* Varies

*Geospatial\_Data\_Presentation\_Form:* Map

*Publication\_Information:*

*Publication\_Place:* Reston, VA

*Publisher:* USGS

*Source\_Scale\_Denominator:* 100000

*Type\_of\_Source\_Media:* Paper

*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Single\_Date/Time:*

*Calendar\_Date:* Varies

*Source\_Currentness\_Reference:* ground condition

*Source\_Citation\_Abbreviation:* map1

*Source\_Contribution:* The source map is scanned to produce the DRG.

*Process\_Step:*

*Process\_Description:*

The production procedures, instrumentation, hardware, and software used in the collection of standard DRG products vary depending on systems used at the contract, cooperator or USGS production sites. The majority of DRG data sets are acquired through government contract. The process step describes, in general, the process used in the production of standard DRG data sets.

1. Production of a DRG begins with the scanning of a paper 7.5-minute topographic map (map1) on a high-resolution scanner. Scanning resolutions range from 500 - 1000 dpi with the output file running between 160-300 mb.

2. Removal of screens (descreening) and color quantization to reduce the number of colors also takes place during the scanning phase.

3. The raw scan file is then transformed and georeferenced using UTM coordinates of the sixteen 2.5-minute grid ticks, which are obtained using the in-house produced program COORDAT and stored in a ground control file. Those sixteen 2.5-minute ticks are interactively visited and assigned

their respective UTM coordinates. USGS program XSHAPES4 then performs a piecewise linear rubber sheet transformation.

4. An output resolution of 2.4 meters (8.2 feet) is chosen in order to resample the file to 250 dpi.
5. The image file is converted to a TIFF and further reduced by converting the file to a run length encoding Packbits compression(type 32773).
6. The color palette of the compressed DRG is then standardized by replacing the original RGB values assigned during the scanning process with standard RGB value combinations using the in-house produced TIFFREMAP program.
7. Prior to archiving the DRG undergoes the following quality assurance procedures:
  - a. The color index values of each DRG are checked to ensure the RGB combinations are consistent with the standardized color palette.
  - b. All DRG files are inspected to ensure that they are geometrically consistent with normal map presentation.
  - c. Selected DRG's are checked to ensure that data elements in the DRG metadata file correspond to the map collar information and to the information in the associated image file.
  - d. Selected DRG's are checked for georeferencing accuracy by comparing the book value of latitude and longitude tick marks with corresponding tick intersections in the DRG image.
  - e. Transformations are checked on selected DRG's by comparing the positions of well defined points, such as UTM grid intersections in the graphic product, with the corresponding image points in the DRG.

USGS DRG production specifications are available on request from the National Mapping Division and Mid-Continent Mapping Center by contacting:

Rolla-ESIC U.S. Geological Survey 1400 Independence Rd., MS231 Rolla, MO 65401-2602 Phone (314)341-0851 Facsimile (314)341-9375 E-mail to [esic@mcdgs91.cr.usgs.gov](mailto:esic@mcdgs91.cr.usgs.gov) World Wide Web: <http://mcmcweb.cr.usgs.gov>

[gov/gdc/>](#)

[The preceding Lineage information is from the original USGS metadata. The following paragraphs describe subsequent processing carried out by the WiDNR Geographic Services Section after receiving copies of the USGS DRG product described above.]

8. The 'collar' surrounding the map portion of each DRG containing ancillary information about the printed map, such as scale bars, legend and attribution, was reclassified by WiDNR to a distinct range of pixel values in the scanned image (values 20 through 32). This enables ArcView users to optionally 'turn off' the DRG map collar for display purposes.

9. The DRGs were converted to the Wisconsin Transverse Mercator (WTM) coordinate system, based on the 1991 adjustment to the North American Datum of 1983 (NAD83/91).

*Source\_Used\_Citation\_Abbreviation:* map1

*Process\_Date:* 19970116

*Process\_Step:*

*Process\_Description:* Metadata imported.

*Source\_Used\_Citation\_Abbreviation:* K:\drglib\drgiw91c\metadata\drgiw91c.txt.xml

*Spatial\_Data\_Organization\_Information:*

*Indirect\_Spatial\_Reference:* None

*Direct\_Spatial\_Reference\_Method:* Raster

*Raster\_Object\_Information:*

*Raster\_Object\_Type:* Pixel

*Row\_Count:* Varies

*Column\_Count:* Varies

*Spatial\_Reference\_Information:*

*Horizontal\_Coordinate\_System\_Definition:*

*Planar:*

*Grid\_Coordinate\_System:*

*Grid\_Coordinate\_System\_Name:* Other Grid System's Definition

*Other\_Grid\_System's\_Definition:*

Name: WTM 83 (Wisconsin Transverse Mercator, NAD83/91)

Projection: Transverse Mercator Scale\_Factor\_at\_Central\_Meridian  
0.9996 Longitude\_of\_Central\_Meridian -90.000  
Latitude\_of\_Projection\_Origin 0.0 False\_Easting 520000.0  
False\_Northing -4480000.0 Citation 'Wisconsin Coordinate  
Systems', published by the Wisconsin State Cartographer's Office,  
1995, Madison, Wisconsin

*Planar\_Coordinate\_Information:*

*Planar\_Coordinate\_Encoding\_Method:* row and column

*Coordinate\_Representation:*

*Abscissa\_Resolution:* 2.438400

*Ordinate\_Resolution:* 2.438400

*Planar\_Distance\_Units:* meters

*Geodetic\_Model:*

*Horizontal\_Datum\_Name:* NAD83/91

*Ellipsoid\_Name:* GEODETIC REFERENCE SYSTEM 80 (GRS80)

*Semi-major\_Axis:* 6378137

*Denominator\_of\_Flattening\_Ratio:* 298.25722210088

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*Entity\_and\_Attribute\_Information:*

*Overview\_Description:*

*Entity\_and\_Attribute\_Overview:*

Each raster entity or pixel contains a color index from 0 through 12 referencing a color palette of RGB values from 0 through 255 in which the standard colors used in the DRG are defined.

USGS DRG Color Palette

Digital Number Color Red Green Blue

0 Black 0 0 0 1 White 255 255 255 2 Blue 0 151 164 3 Red 203 0 23 4 Brown 131  
66 37 5 Green 201 234 157 6 Purple 137 51 128 7 Yellow 255 234 0 8 Light Blue  
167 226 226 9 Light Red 255 184 184 10 Light Purple 218 179 214 11 Light Grey  
209 209 209 12 Light Brown 207 164 142

The above color palette information applies for the map portion of the DRGs.  
Following WiDNR processing of the DRG "map collars", the following color  
palette applies for the map collar portion of the DRGs:

DRG Map Collar Color Palette

## Digital Number Color Red Green Blue

20 Black 0 0 0 21 White 255 255 255 22 Blue 0 151 164 23 Red 203 0 23 24  
Brown 131 66 37 25 Green 201 234 157 26 Purple 137 51 128 27 Yellow 255 234  
0 28 Light Blue 167 226 226 29 Light Red 255 184 184 30 Light Purple 218 179  
214 31 Light Grey 209 209 209 32 Light Brown 207 164 142

*Entity\_and\_Attribute\_Detail\_Citation:* Draft Standards for Digital Raster

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### *Distribution\_Information:*

#### *Distributor:*

##### *Contact\_Information:*

##### *Contact\_Organization\_Primary:*

*Contact\_Organization:* Wisconsin DNR, Bureau of Technology Services

*Contact\_Position:* GIS Data Specialist

##### *Contact\_Address:*

*Address\_Type:* mailing address

*Address:* 101 S. Webster St., P.O. Box 7921

*City:* Madison

*State\_or\_Province:* Wisconsin (WI)

*Postal\_Code:* 53707-7921

*Country:* USA

*Contact\_Electronic\_Mail\_Address:* geodata@dnr.state.wi.us

*Resource\_Description:* Online data

#### *Distribution\_Liability:*

WiDNR and its GIS database cooperators will not be liable in any way for the accuracy of these data, and assume no responsibility whatsoever for direct, indirect, special, consequential, exemplary, or other damages. The burden for determining fitness for use rests entirely upon the data requester. For more information, refer to the DNR 'Legal Notices, Disclaimers, and Terms of Use' page at the following URL: < <http://www.dnr.state.wi.us/org/legal/WebSiteLegalInformation.html> >

### *Standard\_Order\_Process:*

#### *Digital\_Form:*

##### *Digital\_Transfer\_Information:*

*Format\_Name:* TIFF

*Format\_Version\_Number:* 6.0

*File-Decompression\_Technique:* Packbits

*Transfer\_Size:* Approx. 12-35 MB per DRG

##### *Digital\_Transfer\_Option:*

##### *Online\_Option:*

*Computer\_Contact\_Information:*

*Network\_Address:*



*Network\_Resource\_Name:* [<ftp://gomapout.dnr.state.wi.us/geodata/drg\\_250k/>](ftp://gomapout.dnr.state.wi.us/geodata/drg_250k/)

*Access\_Instructions:* Download from DNR ftp site.

*Offline\_Option:*

*Offline\_Media:* CD-ROM

*Recording\_Capacity:*

*Recording\_Density:* 650

*Recording\_Density\_Units:* megabytes

*Recording\_Format:* ISO 9660

*Ordering\_Instructions:* Download from DNR ftp site.

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*Metadata\_Reference\_Information:*

*Metadata\_Date:* 199904, 20060711

*Metadata\_Contact:*

*Contact\_Information:*

*Contact\_Organization\_Primary:*

*Contact\_Organization:* Wisconsin DNR, Bureau of Technology Services

*Contact\_Position:* GIS Data Specialist

*Contact\_Address:*

*Address\_Type:* mailing address

*Address:* P.O. Box 7921

*City:* Madison

*State\_or\_Province:* WI

*Postal\_Code:* 53707-7921

*Country:* USA

*Contact\_Electronic\_Mail\_Address:* geodata@dnr.state.wi.us

*Metadata\_Standard\_Name:* FGDC Content Standards for Digital Geospatial Metadata

*Metadata\_Standard\_Version:* FGDC-STD-001-1998

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